APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/611,403	07/01/2003	Theodore F. Emerson	200304331-2	1914

22879 7590 05/14/2009	EXAMINER	
HEWLETT PACKARD COMPANY	NGUYEN, HAU H	
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INTELLECTUAL PROPERTY ADMINISTRATION	ART UNIT	PAPER NUMBER
FORT COLLINS, CO 80527-2400	2628	

NOTIFICATION DATE	DELIVERY MODE
05/14/2009	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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	Application No.	Applicant(s)
Office Action Summary	10/611,403	EMERSON ET AL.
	Examiner	Art Unit	
	HAU H. NGUYEN	2628	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS,
WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>27 January 2009</u>.

2a)☒ This action is **FINAL**.   2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) _1-8,10-17,19-33 and 35-38_ is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) _1-8, 10-17, 19-33, 35-38_ is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage
application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.

5)☐ Notice of Informal Patent Application

6)☐ Other: _____.

DETAILED ACTION

The response filed on **01/27/2009** has been fully considered in preparing for this Office Action.

Double Patenting

1.   The double patenting rejection in the previous Office Action is still in effect until

Applicant submits the required Terminal Disclaimer.

Claim Rejections - 35 USC § 103

2.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in
> section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are
> such that the subject matter as a whole would have been obvious at the time the invention was made to a person
> having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the
> manner in which the invention was made.

3.   Claims 1-8, 10-11, 13-17, 19-20, 22-33, 35-38 are rejected under 35 U.S.C. 103(a) as

being unpatentable over Szamrej (U.S. Patent No. 5,990,852) in view of Frederick (U.S. Patent

No. 5,485,212).

As per claim 1, Szamrej teach a method for transmitting video graphics data, comprising:

a processor dividing a screen into a number of blocks, the blocks having contents (see

Summary of the Invention, col. 2, lines 25-33, and Figs. 3A-C, *screen segmented into a sixteen*

by sixteen (16 x16) array of cells or blocks, col. 5, lines 42-45);

the processor periodically reading, from a buffer, the contents of each one of the blocks

(the monitoring thread as shown in Fig. 2A, col. 3, lines 49-65);

the processor computing a unique value for a first block based on the contents (Fig. 2A,

step 28);

the processor comparing the unique value for the first block to a previously computed

unique value corresponding to the first block (Fig. 2A, step 28, see col. 4, lines 24-55); and

the processor transmitting the contents of the first block if the unique value for the first

block is different from the previously computed unique value corresponding to the first block

(Fig. 2B, col. 4, line 65 to col. 5, line 4).

Szamrej fails to explicitly teach reading the contents of each one of the blocks over a

number of passes, wherein each pass reads a different fraction of all the blocks.   However,

Frederick teaches a method of transmitting video data where the frame is divided into plurality of

pixel data blocks, comparing the previous stored block with the current block to find changes,

and transmitting the changed block (see col. 1, line 63 through col. 2, line 35). Frederick further

teaches *reading the contents of each one of the blocks over a number of passes, wherein each*

pass reads a different fraction of all the blocks (col. 2, lines 13-22, i.e. reading one row of each

block to compare with corresponding row of previous frame).

Since both Szamrej and Frederick teach reading the contents block by block to find the

changes and transmitting the changed blocks, Frederick further teaches reading a fraction of each

block until all blocks are read, it would have been obvious to one skilled in the art to utilize the

method as taught by Frederick in combination with the method as taught by Szamrej in order to

minimize the processing time (col. 2, lines 18-22).

As per claim 2, Szamrej further teaches:

storing the unique value for the first block in a table if the unique values are different

(Steps 34 and 36, Fig. 2A); and

comparing the unique value of the first block to a unique value corresponding to a

preceding block,

wherein the transmitting step transmits the preceding block and a repeat command if the

unique value of the first block is equal to the unique value corresponding to the preceding block

(*Szamrej teaches using run length encoding to send the blocks in groups, col. 5, lines 57-61, and

the method for obtaining the optimal rectangle described in Figs. 3A-6C*).

As per claim 3, which is similar in scope to claim 2, further requires compressing the

contents of the blocks, Szamrej also teaches this feature as described on column 2, lines 61-66.

As per claim 4, as cited above, Szamrej teaches compressing using run length encoding.

As per claim 5, as cited above, Szamrej teaches dividing the screen into plurality of

blocks, and monitoring the changes of each of the blocks, and transmitting the changed blocks if

the values representing the blocks are unequal. Thus, it is implied that the configuration

information of the video graphics controller (*such as screen resolution to which the number of

blocks are divided,* col. 4, lines 7-11) is periodically read to determine if the configuration

information has changed and transmitting configuration changes if the configuration information

has changed (In interpreting this claim language, the examiner bases his rejection on what is

disclosed in the instant Application, on page 15, lines 8-11, the configuration information of

video controller includes the screen resolution, see Szamrej, col. 4, lines 7-11).

As per claim 6, Szamrej teaches the screen is divided into a number of blocks, including

rows and columns, based on the screen resolution (col. 4, lines 7-11), and it is inherent that the

configuration information (based on the screen resolution, as discussed above in claim 5), is read

after a row of blocks is completed in order to process the change detection.

Claim 8, which is similar in scope to claim 6, is thus rejected under the same rationale.

As per claim 10, as cited above with reference to claim 1, the combined Szamrej-Callaway also teaches surrounding blocks are marked for accelerated processing (as in Szamrej, *the surrounding blocks as shown in Figs. 3E-6C are marked to find the optimal rectangle*), if during one of the passes the unique value for a given block is different from a previously computed unique value corresponding to the given block (as in Callaway, *each line (pass) is read to identify changes).*

Therefore, it would have been obvious to one skilled in the art to utilize the method as taught by Callaway in combination with the method as taught by Szamrej in order to quickly detect the changes in the host display and transmit to the remote computer (col. 5, lines 3-23).

As per claim 11, as cited above in claims 1 and 10, Szamrej-Callaway teach each pass reads a different fraction of all the blocks and any block marked for accelerated processing.

Therefore, it would have been obvious to one skilled in the art to utilize the method as taught by Callaway in combination with the method as taught by Szamrej in order to quickly detect the changes in the host display and transmit to the remote computer (col. 5, lines 3-23).

As per claim 13, as cited above, Szamrej teaches a method of transmitting video graphics data comprising:

a processor dividing a screen into a number of blocks (see Summary of the Invention, col. 2, lines 25-33, and Figs. 3A-C, *screen segmented into a sixteen by sixteen (16 x16) array of cells or blocks*, col. 5, lines 42-45);

the processor reading, from a buffer, a first block and at least one subsequent block (the monitoring thread as shown in Fig. 2A, col. 3, lines 49-65);

the processor comparing the first block to a subsequent block (Fig. 2A, step 28, see col. 4, lines 24-55);

the processor developing a repeat command based on how many subsequent blocks equal the first block (using run-length coding); and

the processor transmitting the first block and the repeat command (see Fig. 3B, blocks with the same counter number of 1 (blocks with changes) would be sent together in group using run length encoding, col. 5, lines 40-60; see definition of run-length encoding).

Szamrej fails to explicitly teach reading the contents of each one of the blocks over a number of passes, wherein each pass reads a different fraction of all the blocks. However, Frederick teaches a method of transmitting video data where the frame is divided into plurality of pixel data blocks, comparing the previous stored block with the current block to find changes, and transmitting the changed block (see col. 1, line 63 through col. 2, line 35). Frederick further teaches reading the contents of each one of the blocks over a number of passes, wherein each pass reads a different fraction of all the blocks (col. 2, lines 13-22, i.e. reading one row of each block to compare with corresponding row of previous frame).

Since both Szamrej and Frederick teach reading the contents block by block to find the changes and transmitting the changed blocks, Frederick further teaches reading a fraction of each block until all blocks are read, it would have been obvious to one skilled in the art to utilize the method as taught by Frederick in combination with the method as taught by Szamrej in order to minimize the processing time (col. 2, lines 18-22).

Claim 14, which is similar to claim 5, is thus rejected under the same rationale.

Claim 15, which is similar to claim 6, is thus rejected under the same rationale.

Claim 16, which is similar to claim 7, is thus rejected under the same rationale.

Claim 17, which is similar in scope to claim 6, is thus rejected under the same rationale.

Claim 19, which is similar in scope to claim10, is thus rejected under the same rationale.

Claim 20, which is similar in scope to claim 11, is thus rejected under the same rationale.

As per claim 22, Szamrej teaches a method of transmitting video graphics data comprising:

the processor dividing a screen into a number of blocks (screen segmented into a sixteen by sixteen (16 x16) array of cells or blocks, col. 5, lines 42-45);

the processor reading a first block of the screen (the monitoring thread as shown in Fig. 2A, col. 3, lines 49-65);

the processor compressing the first block (col. 2, lines 61-66);

the processor reading, from a buffer, a second block of the screen (col. 2, lines 61-66);

the processor comparing the first block to the second block (Fig. 2A, step 28, see col. 4, lines 24-55);

the processor compressing the second block with the first block if the first and second blocks are not equal; and transmitting the compressed blocks (col. 2, lines 25-33, and lines 61-66).

Szamrej fails to explicitly teach reading the contents of each one of the blocks <u>over a number of passes, wherein each pass reads a different fraction of all the blocks.</u> However, Frederick teaches a method of transmitting video data where the frame is divided into plurality of pixel data blocks, comparing the previous stored block with the current block to find changes, and transmitting the changed block (see col. 1, line 63 through col. 2, line 35). Frederick further

teaches *reading the contents of each one of the blocks over a number of passes, wherein each pass reads a different fraction of all the blocks* (col. 2, lines 13-22, i.e. reading one row of each block to compare with corresponding row of previous frame).

Since both Szamrej and Frederick teach reading the contents block by block to find the changes and transmitting the changed blocks, Frederick further teaches reading a fraction of each block until all blocks are read, it would have been obvious to one skilled in the art to utilize the method as taught by Frederick in combination with the method as taught by Szamrej in order to minimize the processing time (col. 2, lines 18-22).

Claim 23, which is similar in scope to claim 4, is thus rejected under the same rationale.

Claim 24, which is similar in scope to claims 10-11, is thus rejected under the same rationale.

As per claim 25, Szamrej teaches a computer system for communicating with a remote console (Fig. 1), comprising:

a video graphics controller having a frame buffer (not shown but inherently included in a typical computer system);

a communications device (network 12); and

a processor coupled to the video graphics controller and the communications device, the processor configured to: divide the frame buffer into a number of blocks (as cited above);

periodically read the frame buffer and determine whether any of the blocks have changed since a previous reading (reading the contents of the video memory, col. 3, lines 55-65); and

transmit changed blocks to the remote console via the communications device (as cited above).

Szamrej fails to explicitly teach reading the contents of each one of the blocks <u>over a number of passes, wherein each pass reads a different fraction of all the blocks.</u>   However, Frederick teaches a method of transmitting video data where the frame is divided into plurality of pixel data blocks, comparing the previous stored block with the current block to find changes, and transmitting the changed block (see col. 1, line 63 through col. 2, line 35). Frederick further teaches *reading the contents of each one of the blocks over a number of passes, wherein each pass reads a different fraction of all the blocks* (col. 2, lines 13-22, i.e. reading one row of each block to compare with corresponding row of previous frame).

Since both Szamrej and Frederick teach reading the contents block by block to find the changes and transmitting the changed blocks, Frederick further teaches reading a fraction of each block until all blocks are read, it would have been obvious to one skilled in the art to utilize the method as taught by Frederick in combination with the method as taught by Szamrej in order to minimize the processing time (col. 2, lines 18-22).

As per claim 26, Szamrej also teaches a hash code (cyclic redundancy code, as defined in paragraph 53 of the Specification) is calculated and stored for each block when the block is first read, and wherein subsequent changes are determined for a given block by calculating a new hash code and comparing the new hash code to the stored hash code (col. 2, lines 34-46, and col. 4, lines 24-37).

Claim 27, which is similar in scope to claim 13, is thus rejected under the same rationale.

Claim 28, which is similar in scope to claims 25 and 26, is thus rejected under the same rationale.

Claim 29, which is similar in scope to claim 4, is thus rejected under the same rationale.

Claim 30, which is similar in scope to claim 5, is thus rejected under the same rationale.

Claim 31, which is similar in scope to claim 6, is thus rejected under the same rationale.

Claim 32, which is similar in scope to claim 7, is thus rejected under the same rationale.

Claim 33, which is similar in scope to claim 6, is thus rejected under the same rationale.

Claim 35, which is similar in scope to claim 10, is thus rejected under the same rationale.

Claim 36, which is similar in scope to claim 11, is thus rejected under the same rationale.

Claim 37, which is similar in scope to claim 25, is thus rejected under the same rationale.

Claim 38, which is similar in scope to claims 25 and 26, is thus rejected under the same rationale.

4.   Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Szamrej (U.S.

Patent No. 5,990,852) in view of Frederick (U.S. Patent No. 5,485,212), and further in view of

Epart et al. (U.S. Patent No. 5,241,625, "Epard", hereinafter).

As per claim 7, although the combined Szamrej-Frederick does not explicitly teach

periodically reading information of a pointing device to determine the changes, and transmitting

configuration changes if the position has changed, this is taught by Epard (see col. 36, lines 55-

59, and col. 61, lines 38-52).

Therefore, it would have been obvious to one skilled in the art to utilize the method as

taught by Epard in combination with the method as taught by Szamrej-Frederick in order to

monitor changes caused by an input device.

5.   Claims 12 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Szamrej

(U.S. Patent No. 5,990,852) in view of Frederick (U.S. Patent No. 5,485,212), and further in

view of Fujimoto (U.S. Patent No. 5,473,348).

        As per claim 12, Szamrej teaches the blocks contain color value (col. 1, lines 20-25). The

combined Szamrej-Frederick reference fails to teach *condensing the color values into 6-bit red-*

green-blue color values before computing the unique values. However, it is well-known in the art

at the time the invention was made to convert the color values of pixels into 6-bit RGB as

described in Fujimoto col. 7, lines 31-35, the advantage of which is to reduce the amount of data

per pixel in order to transmit over a low bandwidth network.

        Claim 21, which is similar in scope to claim 12, is thus rejected under the same rationale.

Response to Arguments

        Applicant's arguments filed 01/27/2009 have been fully considered but they are not

persuasive. In response to Applicant's arguments that the cited reference fails to teach *reading*

the contents of each one of the blocks over a number of passes, wherein each pass reads a

different fraction of all the blocks, the examiner respectfully disagrees. In fact, Frederick, which

is used as a secondary reference, discloses on col. 2, lines 2-22:

> …the data of sequential frames of the signal are arranged in a plurality of blocks of pixel data that
> numerically represent visual characteristics of the respective pixels of the frame image. Each block is
> further organized as a matrix of pixel data.
> The pixel data of the blocks of a "previous" video frame are stored in a memory. The "previous" video
> frame may constitute an earlier received frame that has been updated in order to reflect changes in the
> pixel data that has already been transmitted to the receiver. Corresponding blocks of a currently
> received frame video signals from the video source are also stored. *A row* (or column) *of each block of*
> *the current video signal is compared with the corresponding ro*w (or column) *of the previous video*
> *frame*, and when a comparison reveals that changes in any block exceed a predetermined threshold, that
> block is listed as a "changed" block. While only one row of each block is compared in the processing of

each current, *in order to minimize the processing time, other rows of the respective blocks are sequentially compared in the processing of subsequent video frame* (emphasis added, col. 2, lines 2-22).

Thus, from the excerpt above, rows (fractions) of *all the blocks* of the current frame that are read over a period of time, not just one row of any block, in order to save time.

In regard to Applicant's arguments to claim 5, the examiner also disagrees. Since Szamrej teaches the *number of blocks* is dependent upon the screen resolution, and if the screen resolution is changed (configuration information changes), the reading, detecting changes, and transmitting is changed accordingly.

Since the cited reference meets the minimum requirements of the claims, rejection is maintained.

Conclusion

6.   **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

7.   Any inquiry concerning this communication or earlier communications from the
examiner should be directed to Hau H. Nguyen whose telephone number is: 571-272-7787. The
examiner can normally be reached on MON-FRI from 8:30-5:30.

        If attempts to reach the examiner by telephone are unsuccessful, the examiner's

        supervisor, Kee Tung can be reached on (571) 272-7794.

         The fax number for the organization where this application or proceeding is assigned is
571-273-8300.

        Information regarding the status of an application may be obtained from the Patent
Application Information Retrieval (PAIR) system. Status information for published applications
may be obtained from either Private PAIR or Public PAIR. Status information for unpublished
applications is available through Private PAIR only. For more information about the PAIR
system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR
system contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Hau H Nguyen/

Primary Examiner, Art Unit 2628